

Lab 2 - Router Modes and Commands

Lab 2: Basic lab - Router modes and commands

The physical topology is as shown in Figure 12-1.

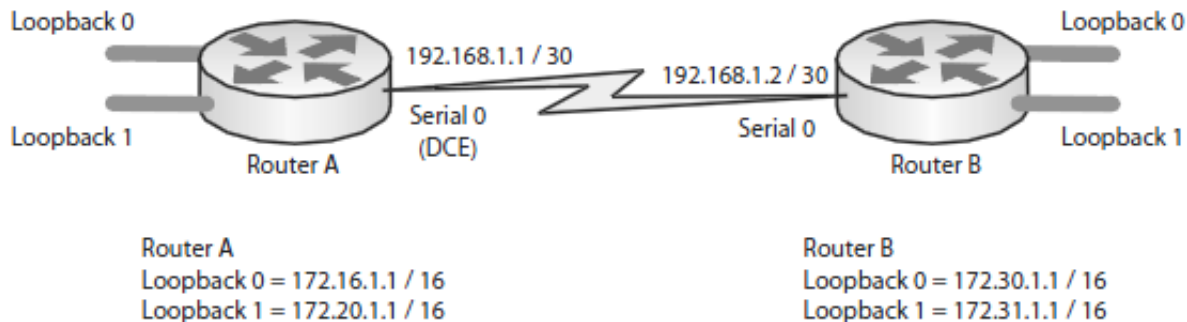


Figure 12-1: Physical topology

Purpose

Any person new to configuring Cisco routers needs to feel comfortable navigating around the various router features and modes. This lab will be a great icebreaker for a budding CCNA.

Lab objectives

1. Connect to the console port.
2. Enter privileged mode (enable mode).
3. Enter global configuration mode (config mode).
4. Enter the interface configuration mode.
5. Enter the routing configuration mode (router mode).
6. Exit to privileged mode.
7. Execute some useful commands.
8. Exit to user exec mode.
9. Interface statistics.
10. Change router hostname.

Lab walk-through

When connecting to the console of the router, you will typically see the following message:

Router con0 is now available

Press RETURN to get started .

As instructed, you simply need to press the Enter key and you will enter the first mode of the router, user exec mode:

Router>

11. Now you are in user exec mode. You will next need to enter privileged mode, or enable mode as it is more commonly known. To do this type:

```
Router>enable
```

You will now be presented with a new prompt that has a hash (#) sign instead of the greater than (>) sign:

```
Router>enable
```

```
Router#
```

Enable mode is used to perform all the show and debug commands: these will be explained further later in the lab.

12. The next mode to enter is global configuration mode, or config mode as it is also known. To enter config mode type:

```
Router#config terminal
```

As you will soon learn, all the commands in the Cisco IOS (operating system) can be abbreviated, e.g., you could have entered:

```
Router#config t
```

If you just type "config" and press Enter you will receive the following:

```
Router#config
```

Configuring from terminal, memory, or network [terminal]?

As you will see terminal is the default (indicated by the square brackets, []), so you can simply press Enter to go into config or privileged mode.

13. Once in config mode you will be prompted with the following message:

```
Router#config terminal
```

Enter configuration commands, one per line. End with Ctrl+Z.

```
Router(config)#
```

This is telling you that when you have finished in config mode, type Ctrl+Z to exit (while holding the Ctrl key down, press the Z key).

Once in config mode, you will have noticed the prompt changed again, this time from "Router#" to "Router(config)#" indicating that you are in config mode. There are sub-layers to config mode, but we are only interested in two of them, the first being interface config mode:

```
Router(config)#interface fast ethernet 0 « Or loopback 0 if your  
router does not have an
```

Ethernet interface

```
Router(config-if)#
```

If you are not sure which interfaces you have on your router, you can look at the back or use the "show ip interface brief" command at the "Router#" prompt. If you do not have an Ethernet interface, replace the above with "interface loopback 0".

You will see that the prompt has changed again: the "-if" tells you that you are now

in interface configuration mode:

```
Router(config)#interface fast ethernet 0
```

```
Router(config-if)#
```

14. The second sublayer to config mode we will be concerned with is the router configuration mode:

```
Router(config)#interface fastethernet 0 « Use loopback 0 if your
```

```
router does not have an
```

```
Ethernet 0
```

```
Router(config-if)#exit
```

```
Router(config)#router rip
```

```
Router(config-router)#
```

You will see that when you exit from interface configuration mode and type “router rip”, you enter router config mode. You can see that the prompt has changed again to reflect this.

15. To exit config mode and go back to privileged (enable) mode you simply need to type:

```
Router(config-if)# ^Z « Hold down the “Ctrl” and “Z” keys (together)
```

```
Router#
```

When you do this, you will get the following message displayed after a few seconds:

```
Router(config-if)# ^Z
```

```
Router#
```

```
%SYS-5-CONFIG_I: Configured from console by console
```

```
Router#
```

16. Now that we are back in enable mode, we can use some useful show commands. The common ones to use are:

```
Router#show ip interface brief
```

```
RouterA#show ip int brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Loopback0	172.16.1.1	YES	manual	up	up
Serial0	192.168.1.1	YES	manual	up	up
Serial1	unassigned	YES	unset	administratively down	down

The benefit of this command is that it shows the status and IP addresses of all interfaces in a table. Do not worry if your output is different from the one above.

The next command that is useful is “show running-configuration”, which will display the current configuration (yours may look different from the one below). The output will be cut short so you can see it all on your monitor. You can press the Enter key to go through it line by line or press the spacebar to scroll up a page at a time:

```
Router#show running-config
```

```
or
```

```
Router#show run « Abbreviated command
```

```
Router#
```

```
Router#show run
```

```
Building configuration...
```

```
Current configuration:
```

```
!  
version 12.0  
service log backtrace  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
!  
hostname Router  
!  
ip subnet-zero  
!  
interface Ethernet0  
  no ip address  
  shutdown  
!  
interface Serial0  
  no ip address  
  shutdown  
!  
interface Serial1  
  no ip address  
  no ip directed-broadcast  
  shutdown  
!  
line con 0  
!  
line aux 0  
!  
line vty 0 4  
!  
end
```

```
Router#
```

```
Type “show version”.
```

```
Router#show version
```

```
Cisco Internetwork Operating System Software  
IOS (tm) 2500 Software (C2500-IK8OS-L), Version 12.2(7a), RELEASE  
SOFTWARE (fc2)  
Copyright (c) 1986-2002 by cisco Systems, Inc.  
Compiled Wed 20-Feb-02 23:44 by pwade
```

Image text-base: 0x0306C4A8, data-base: 0x00001000
ROM: System Bootstrap, Version 11.0(10c)XB2, PLATFORM SPECIFIC RELEASE SOFTWARE (fc1)
BOOTLDR: 3000 Bootstrap Software (IGS-BOOT-R), Version 11.0(10c)XB2, PLATFORM SPECIFIC RELEASE SOFTWARE (fc1)

Router uptime is 1 week, 2 days, 40 minutes
System returned to ROM by power-on
System image file is "flash:c2500-js.bin"
cisco 2500 (68030) processor (revision L) with 14336K/2048K bytes of memory.
Processor board ID 15743551, with hardware revision 00000000
Bridging software.
X.25 software, Version 3.0.0.
2 Ethernet/IEEE 802.3 interface(s)
2 Serial network interface(s)
32K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash (Read ONLY)
Configuration register is 0x2102

17. To exit to the user exec mode, you simply need to type "disable" (opposite of "enable"):

```
Router#disable
Router>enable
Router#
```

18. You can also examine the interface statistics. The most relevant statistics are in bold.

```
Router#show interface serial 0
Serial0 is administratively down, line protocol is down
  Hardware is HD64570
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set
  Keepalive set (10 sec)
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops:
0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
    Conversations 0/0/256 (active/max active/max total)
    Reserved Conversations 0/0 (allocated/max allocated)
    Available Bandwidth 1158 kilobits/sec
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts, 0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    0 packets output, 0 bytes, 0 underruns
    0 output errors, 0 collisions, 1 interface resets
    0 output buffer failures, 0 output buffers swapped out
    0 carrier transitions
  DCD=down DSR=down DTR=down RTS=down CTS=down
```

19. You can change the hostname of the router:

```
Router#config
Configuring from terminal, memory, or network [terminal]? « Press Enter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname RouterA
RouterA(config)#
```

20. Now reload the router: do not save any changes.

Router#reload



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